

REMARKS

Reconsideration of the pending application is respectfully requested on the basis of the following particulars.

1. In the specification

The specification is amended, as shown in the foregoing AMENDMENT TO THE SPECIFICATION, to correct minor informalities, to clarify the products associated with trademarks used, and to clarify descriptions of the lengths shown in the figures. It is respectfully submitted that no new matter is added since the changes simply correct minor informalities, and clarify the description of features shown in the figures as originally filed.

Entry of the AMENDMENT TO THE SPECIFICATION is respectfully requested in the next Office communication.

2. In the claims

As shown in the foregoing AMENDMENT TO THE CLAIMS, the claims have been amended to more clearly point out the subject matter for which protection is sought.

A. Claim amendments

Claim 3 is canceled and rewritten as new claim 7. It is respectfully submitted that no new matter is added, since support for the features of new claim 7 is clearly found at least in Figs. 4 and 5 of the pending application and at least on page 1, lines 11-13, page 3, lines 19-23, page 6, lines 23-25, page 7, lines 22-23, and page 9, lines 11-12 of the accompanying description in the specification.

Claim 6 is amended to depend from, and be consistent with, new claim 7 and to replace the trademark "Teflon" with a recitation of the product available for sale under the trademark Teflon.

Claims 1, 2, 4, and 5 remain cancelled.

Entry of the AMENDMENT TO THE CLAIMS is respectfully requested in the next Office communication.

B. Claim objections

The objection to claim 3 is rendered moot by the cancellation of claim 3.

Accordingly, withdrawal of the claim objection is respectfully requested.

3. Rejection of claim 3 under 35 U.S.C. § 102(b) as being anticipated by U.S. patent no. 4,500,163 (*Burns et al.*)

This rejection is rendered moot by the cancellation of claim 3. In so far as the rejection is applicable to new claim 7, it is respectfully submitted that the *Burns* patent fails to disclose each and every limitation of claim 7.

The *Burns* patent fails to disclose a method for manufacturing a spherical reflective screen, including preparing an aluminum foil as the surface material of the screen and rubbing the aluminum foil in a lateral direction that corresponds to the scanning, or viewing, direction of the screen in order to form a frictional surface and coherent lateral diffusing lines, and further, shaping the aluminum foil to have a regular spherical shape such that the focal point of the screen is formed at a position spaced from the center of curvature of the screen by a distance of one half of the length of the radius of curvature of the screen, as required by claim 7.

The *Burns* patent discloses a spherical holographic projection screen for providing stereoscopic effects. Specifically, the screen is designed to provide a single locus of all locations from which an image projected on the screen may be seen, a so-called pupil, such that the projected image may be seen when the observer's eye is within the pupil, but the image may not be seen when the observer's eye is outside the pupil (col. 1, lines 9-14). In order to accomplish this objective, the screen 18 is made up of an array consisting of a plurality of elemental screen areas 20 that are each formed as a hologram of the observation pupil (col. 2, lines 63-66). The methods of forming the holograms on the elemental screen areas are described in detail within the *Burns* patent, none of which involve rubbing an aluminum foil in the lateral direction

corresponding to a scanning direction of the screen to form a frictional surface and coherent lateral diffusing lines on the surface of the aluminum foil, as required by claim 7. Thus, since the screen 18 is formed of an array of elemental hologram screen areas 20, it seems clear that the screen 18 is not formed in the same manner as required by claim 8.

Further, the center of the screen 18, from which the radius of curvature of the screen is measured, is located between the projector 14 and the position of the observer 10 (Fig. 1; col. 2, lines 45-47). Thus, the focal point, which corresponds to the location of the projector, is located at a distance greater than the radius of curvature from the center of curvature of the screen 18. This configuration is clearly different from the configuration in claim 7, which requires that the focal point is located halfway between the center of curvature of the screen and the length of the radius of curvature.

The particular configuration of the embodiment of claim 7 provides numerous advantages. Specifically, when the projector is located at the focal point of the embodiment of claim 7, light emitted from the projector incident to the spherical surface of the screen is reflected back in straight lines parallel to an axis of the screen that is defined along and through the center of curvature of the screen and the focal point. Therefore, the regular spherical reflective screen of claim 7 exhibits a uniform luminance at the overall portion thereof without forming a hotspot. Therefore, the overall brightness of the screen of claim 7 may be increased at least two-fold with respect to conventional curved screens.

In contrast, it is clear that the screen of the *Burns* patent is specifically designed to create a hotspot, as defined by the observation pupil, which is directly contrary to the embodiment of claim 7, which is designed to eliminate hotspots.

Admittedly, the background section of the *Burns* patent discloses a method of rubbing an aluminum foil to create depressions (col. 1, lines 30-33). However, the method does not describe rubbing the aluminum foil in a lateral direction to form a frictional surface and coherent lateral diffusing lines, as required by claim 7. In fact,

*Burns* patent discloses that the depressions are formed in a manner to act as randomly distributed retro-reflectors (col. 1, lines 33-35).

Further, screens manufactured in the manner described by the *Burns* patent exhibit a narrow lateral viewing angle (col. 1, lines 18-24, 30-35). In contrast, screens formed by the method of claim 7 maintain a high brightness without causing an adverse effect on an image displayed on the screen. In fact, the laterally extending diffusing lines of claim 7 actually increase the lateral viewing angle.

Thus, since the *Burns* patent fails to disclose a method for manufacturing a spherical reflective screen, including preparing an aluminum foil as the surface material of the screen and rubbing the aluminum foil in a lateral direction that corresponds to the scanning, or viewing, direction of the screen in order to form a frictional surface and coherent lateral diffusing lines, and further, shaping the aluminum foil to have a regular spherical shape such that the focal point of the screen is formed at a position spaced from the center of curvature of the screen by a distance of one half of the length of the radius of curvature of the screen, as required by claim 7, claim 7 is allowable in view of the *Burns* patent.

4. Rejection of claim 3 under 35 U.S.C. § 102(b) as being anticipated by U.S. patent no. 3,408,102 (*Chandler et al.*)

This rejection is rendered moot by the cancellation of claim 3. In so far as the rejection is applicable to new claim 7, it is respectfully submitted that the *Chandler* patent fails to disclose each and every limitation of claim 7.

The *Chandler* patent fails to disclose a method for manufacturing a spherical reflective screen, including preparing an aluminum foil as the surface material of the screen and rubbing the aluminum foil in a lateral direction that corresponds to the scanning, or viewing, direction of the screen in order to form a frictional surface and coherent lateral diffusing lines, as required by claim 7.

The *Chandler* patent discloses projection screens of various shapes (col. 3, lines 1-7). The projection screens are formed by compression rolling (col. 1, line 70).

After the compression rolling is completed, the screens have a number of randomly aligned and generally elongated irregularities in the form of surface deformations that extend in a direction normal or perpendicular to the rolling direction, or in other words, extend vertically with respect to the screen, and thus form a diffusing surface (Fig. 3; col. 2, lines 1-4 and 25-27; col. 3, lines 14-16). With such a configuration, hot spots may be generated.

In contrast, the embodiment of claim 7 requires a spherical screen that is rubbed in a lateral direction corresponding to a scanning direction such that a frictional surface and coherent lateral diffusing lines are formed on the surface of the aluminum foil in the lateral direction. There is simply no suggestion in the *Chandler* patent to provide coherent lateral diffusing lines that are formed in the direction of rubbing, since the *Chandler* patent discloses forming a diffusing surface rather than diffusing lines, and the surface deformations are irregular, and non-uniformly vertically oriented.

Thus, since the *Chandler* patent fails to disclose a method for manufacturing a spherical reflective screen, including preparing an aluminum foil as the surface material of the screen and rubbing the aluminum foil in a lateral direction that corresponds to the scanning, or viewing, direction of the screen in order to form a frictional surface and coherent lateral diffusing lines, as required by claim 7, claim 7 is allowable in view of the *Chandler* patent.

5. Rejection of claim 6 under 35 U.S.C. § 103(a) as being unpatentable over U.S. patent no. 4,500,163 (*Burns et al.*) in view of U.S. patent no. 3,653,740 (*Ogura et al.*)

Reconsideration of this rejection is respectfully requested on the basis that the *Ogura* patent fails to make up for the shortcomings of the *Burns* patent, as discussed above in reference to claim 7, from which claim 6 now depends.

Accordingly, withdrawal of this rejection is respectfully requested.

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Examiner: Mahoney, C. E.  
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6. Rejection of claim 6 under 35 U.S.C. § 103(a) as being unpatentable over U.S. patent no. 3,408,102 (*Chandler et al.*) in view of U.S. patent no. 3,653,740 (*Ogura et al.*)

Reconsideration of this rejection is respectfully requested on the basis that the *Ogura* patent fails to make up for the shortcomings of the *Chandler* patent, as discussed above in reference to claim 7, from which claim 6 now depends.

Accordingly, withdrawal of this rejection is respectfully requested.

7. Conclusion

As a result of the amendment to the claims, and further in view of the foregoing remarks, it is respectfully submitted that the application is in condition for allowance. Accordingly, it is respectfully requested that every pending claim in the present application be allowed and the application be passed to issue.

If any issues remain that may be resolved by a telephone or facsimile communication with the applicant's attorney, the examiner is invited to contact the undersigned at the numbers shown below.

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Respectfully submitted,



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